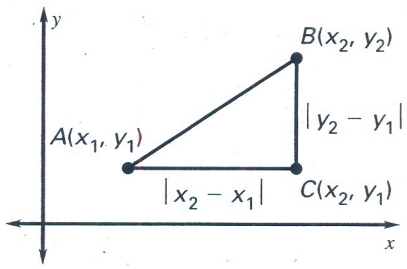
THE DISTANCE FORMULA

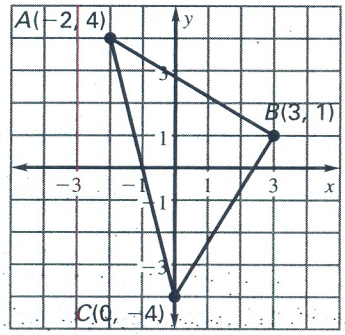
If $A(x_1, y_1)$ and $B(x_2, y_2)$ are points in a coordinate plane, then the distance between A and B is

$AB =$ _____.



Example 3 *Using the Distance Formula*

Find the lengths of the segments. Tell whether any of the segments have the same length.



Use the Distance Formula.

$AB = \sqrt{(\_\_ - (-2))^2 + (\_\_ - \_\_)^2}$

$= \sqrt{\_\_^2 + (\_\_)^2}$

$= \sqrt{\_\_ + \_\_}$

$= \_\_\_\_$

$AC = \sqrt{(0 - (\_\_))^2 + ((\_\_) - \_\_)^2}$

$= \sqrt{\_\_^2 + (\_\_)^2}$

$= \sqrt{\_\_ + \_\_}$

$= \_\_\_\_$

$BC = \sqrt{(\_\_ - 3)^2 + (\_\_ - 1)^2}$

$= \sqrt{(\_\_)^2 + (\_\_)^2}$

$= \sqrt{\_\_ + \_\_}$

$= \_\_\_\_$

Answer So, ____ and ____ have the same length.

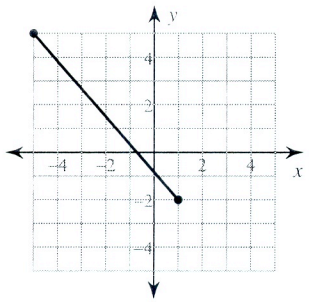
 Name_____ 80

The Distance Formula

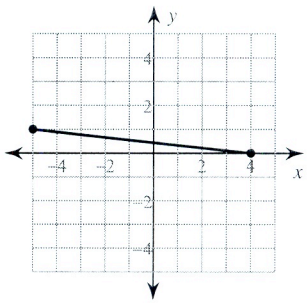
Date_____ Period____

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

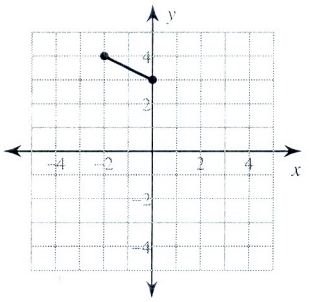
1)



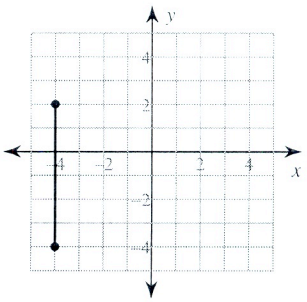
2)



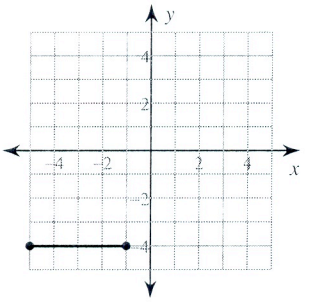
3)



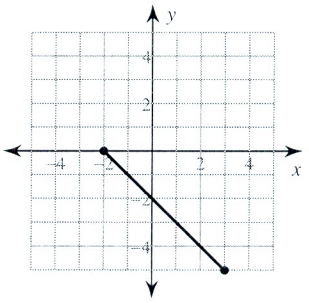
4)



5)



6)



7) $(-2, 3)$, $(-7, -7)$

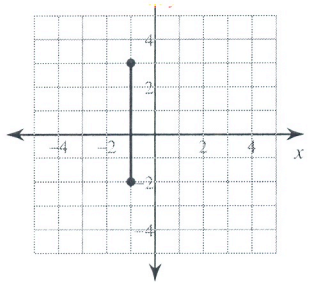
8) $(2, -9)$, $(-1, 4)$

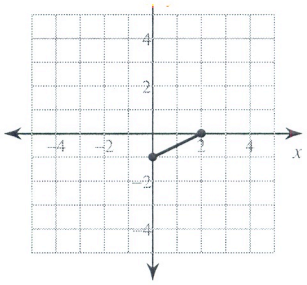
9) $(5, 9)$, $(-7, -7)$

10) $(8, 5)$, $(-1, 3)$

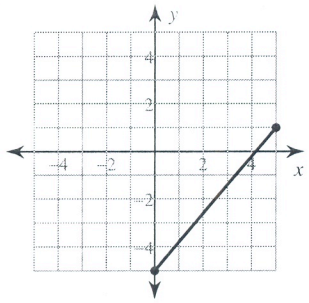
11) $(-10, -7)$, $(-8, 1)$

12) $(-6, -10)$, $(-2, -10)$

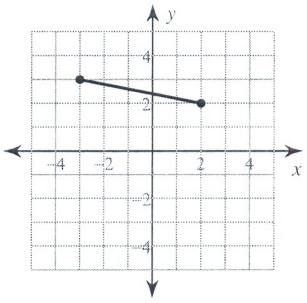




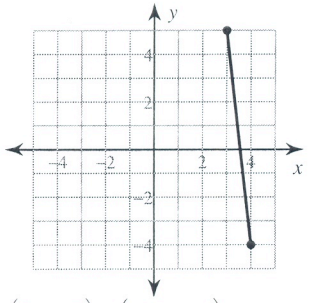
15)



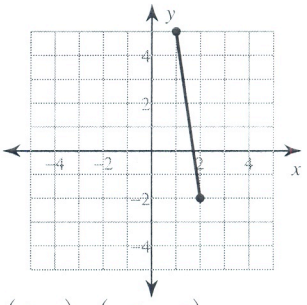
16)



17)



18)



19) $(0, -2)$, $(-5, -1)$

20) $(6, 4)$, $(-5, -1)$

21) $(3, 8)$, $(9, 10)$

22) $(10, 1)$, $(9, -4)$

23) $(-8, 10)$, $(-6, 7)$

24) $(-5, 6)$, $(8, -4)$

Critical thinking questions:

25) Name a point that is $\sqrt{2}$ away from $(-1, 5)$.

26) Name a point that is between 50 and 60 units away from $(7, -2)$ and state the distance between the two points.